UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2004/00212

June 28, 2004

Mr. Kemper M. McMaster
U.S. Fish and Wildlife Service
Oregon Fish and Wildlife Office
ATTN: Jarvis Gust
2600 SE 98th Avenue, Suite 100
Portland, Oregon 97266

Re: Endangered Species Act Section 7 Formal Conference and Magnuson-Stevens Fishery and Conservation Management Act Essential Fish Habitat Consultation for the Roache Creek Stream and Wetland Restoration Project, Siltcoos Basin, Lane County, Oregon

Dear Mr. McMaster:

Enclosed is a conference opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of the U.S. Fish and Wildlife Service (USFWS) funding the proposed Roache Creek Stream and Wetland Restoration project in Lane County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of Oregon Coast coho salmon (*Oncorhynchus kisutch*) evolutionarily significant unit (ESU), which are proposed for listing under the ESA. As required by section 7 of the ESA, NOAA Fisheries included reasonable and prudent measures with nondiscretionary terms and conditions that are necessary to minimize the impact of incidental take associated with this action. However, the incidental take statement does not become effective until NOAA Fisheries adopts this conference opinion as a biological opinion, after the listing is final. Until the time that the species is listed, the prohibitions of the ESA do not apply.

This document also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and includes conservation recommendations to avoid, minimize, or otherwise offset potential adverse effects to EFH. Section 305(b)(4)(B) of the MSA requires Federal agencies to provide a detailed written response to NOAA Fisheries within 30 days after receiving these recommendations. If the response is inconsistent with the recommendations, the action agency must explain why the recommendations will not be followed, including the justification for any disagreements over the effects of the action and the recommendations. This reach of Roache Creek has been designated as EFH for coho salmon and Chinook salmon (*O. tshawytscha*).

Thank you for the opportunity to comment. If you have any questions, please contact Ms. Bridgette Lohrman, Natural Resource Specialist, in the Oregon Coast/Lower Columbia River Habitat Branch of the Oregon State Habitat Office at 503.230.5422.

Sincerely,

for Michael R Course

D. Robert Lohn
Regional Administrator

Endangered Species Act - Section 7 Consultation
Conference Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Roache Creek Stream and Wetland Restoration Project
Siltcoos Basin, Lane County, Oregon

Agency:	U.S. Fish and Wildlife Service
Consultation Conducted By:	NOAA's National Marine Fisheries Service, Northwest Region
Date Issued:	June 28, 2004
Issued by:	For Michael R Crouse D. Robert Lohn Regional Administrator
Refer to:	**2004/00212**

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1. INTRODUCTION

The Endangered Species Act (ESA) of 1973 (16 USC 1531-1544), as amended, establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat on which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with U.S. Fish and Wildlife Service and NOAA's National Marine Fisheries Service (NOAA Fisheries), as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their designated critical habitats. This conference opinion (Opinion) is the product of an interagency conference pursuant to section 7(a)(2) of the ESA and implementing regulations found at 50 CFR 402.

The analysis also fulfills the essential fish habitat (EFH) requirements under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).

1.1 Consultation History

On March 2, 2004, NOAA Fisheries received a letter from the U.S. Fish and Wildlife Service (USFWS) requesting formal consultation pursuant to section 7(a)(2) of the ESA, and EFH consultation pursuant to section 305(b)(2) of the MSA, for the Roache Creek Stream and Wetland Restoration Project, in Lane County, Oregon. The USFWS will provide funding for this restoration project through the Jobs in the Woods Program. A biological assessment (BA) describing the proposed action and its potential effects was submitted with the letter. NOAA Fisheries considered the information sufficient to initiate formal consultation.

In the BA, the USFWS determined the proposed action was likely to adversely affect (LAA) Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*), which at the time were listed under the ESA as a threatened species. The USFWS also found the proposed project may adversely affect designated EFH.[1]

1.2 Proposed Action

The USFWS proposes to provide funding through the Jobs in the Woods Program to construct a stream and wetland restoration project on private property within Roache Creek valley in Lane County, Oregon in Township 19 South, Range 11 West, Section 17 (SE 1/4) and Section 20 (NE 1/4). The site is on Roache Creek, approximately 300 feet upriver of the confluence of Roache

[1] E-mail from Jarvis Gust, USFWS, to Bridgette Lohrman, NOAA Fisheries (May 3, 2004).

Creek with Maple Creek. Roache Creek originates in the Siuslaw National Forest and flows onto private lands before entering Maple Creek at approximately river mile 2. Maple Creek empties into Siltcoos Lake which then enters the Pacific Ocean via the Siltcoos River.

The proposed action is backfilling the current degraded channels (north and south ditches) to re-create a complex instream habitat for coho salmon and enhance summer and winter rearing habitat. The new 1,986 feet of stream channel created on the property will exhibit characteristics of the old meandering channel. The new channel design will be based on the "Rosgen E" stream type with characteristics of a low gradient stream that is slightly entrenched, low width to depth ratios, and high sinuosity with riffle/pool sequences and well-developed floodplains. This new Roache Creek channel will connect high quality off-channel habitat and wetlands with the stream channel while incorporating large wood structures into instream habitat. Overall, the proposed action will enhance 3.85 acres of wetland and 15.4 acres of riparian habitat with native vegetative species and by removing invasive and non-native vegetation. The proposed action will also include construction of an off-channel livestock watering facility and fencing to keep livestock out of the restored area.

Proposed construction activities will be sequenced as follows (Appendix A).

1. Survey and stake new stream channel.

2. Excavate new stream channel and livestock pond. The first phase of the project will involve excavating the new channel by removing 614 cubic yards of material (Table 1). In addition, 222 cubic yards of material will be removed for a livestock watering pond on the southwestern portion of the property. This pond will be fenced off with 1,800 feet of electric fence to prevent livestock from entering the newly-restored area. The excavated material will be stored on site and used to fill the current north and south ditches designated for decommissioning. Any additional fill material needed will be retrieved outside of the project site. This excavation work is scheduled to take approximately 15 days.

3. Place large wood at selected sites along new stream channel. Large wood structures and root wads will be placed at five sites along the newly-excavated channel. These structures will be partially buried (approximately 1.5 times bank full width) to minimize movement downstream. This work is scheduled to take approximately 10 days.

4. Deploy nets upstream to guard against movement of fish into the existing ditch and new stream channel once it is opened. Capture (through seining) aquatic organisms in existing ditches and transport upstream. Continue this activity until ditches are completely plugged.

5. Plug existing ditches in designated areas. Before filling the existing north and south ditches with 1,924 cubic yards of fill, nets will be placed temporarily at the upstream portion of the restoration site to prevent movement of fish into the ditches until the

project is completed. After placing the net upstream, the ditches will be seined and any fish caught will be transported upstream of the project site. Fish seining will continue to occur until the ditches are completely plugged. Plugging the ditches will take approximately 15 days. Reintroduction of the new channel to the lower portions of Roache Creek and to Maple Creek will not be delayed once work is finished because seasonal flooding will inundate the constructed channel under less-controlled conditions.

6. Install livestock fence in designated area.

7. Plant riparian area during the following winter/spring with a variety of native trees and shrubs. Planting of spruce (*Picea* sp.), cedar (*Thuja* sp.), Western hemlock (*Tsuga heterophylla*), and Douglas-fir (*Psuedotuga menziesii*) will occur the winter/spring following construction and will be completed by April 15. Clumps of shrub species will be planted in a number of locations. Approximately 10% of the area will be planted in clumped shrubs. Shrub species will include native crab apple (*Malus* sp.), hooker willow (*Salix hookerana*), Douglas spirea (*Spiraea douglasii*), Labrador tea (*Ledum groenlandicum*), and Sitka willow (*Salix sitchensis*).

Table 1. Existing and new channel specifications for the Roache Creek Stream and Wetland Restoration Project

Existing Channel	Length (ft)	Fill Quantity (cy)	Mean bankfull width (ft)	Mean bankfull depth (ft)	Slope (%)
Spring Drainage (North Ditch)	669	313.5	9.2 (range 8.75-10.6)	2.3 (range 1.9-3.1)	0.81
Mainstem Roache Creek (South Ditch)	805	215.5	5.9 (range 3-9)	2 (range 1.6-2.5)	1.04
New Channel Segment	**Length (ft)**	**Excavation Quantity (cy)**	**Mean bankfull width (ft)**	**Mean bankfull depth (ft)**	**Slope (%)**
C-A* (Mainstem Roache Creek)	714	614	9	1.3	0.67
D-C* (Above spring junction)	340		7	1.1	1
E-C* (Spring flow)	219		2.5	1.2	0.18
F-B*	147		2.5	1.2	0.27

* These letters refer to stream segments shown in Figure 1.

Culvert Replacement
Two culverts under Canary Road transmit water from the north and south ditches. The southern culvert, which handles the main Roache Creek flow, is undersized. The culvert restricts adult fish passage except during perfect flow conditions and eliminates all juvenile upstream passage because of a 2.5-foot fall and a downcut stream system below. The northern culvert is undersized for the existing and future flow levels resulting from this project since it will channel water from both the spring and newly-designed Roache Creek.

The removal of the south culvert and upgrading the north culvert were not described in the BA as part of the proposed project because the USFWS will cover the project under the 2004 NOAA Fisheries/USFWS Programmatic Biological Opinion, "U.S. Fish and Wildlife Service Restoration Activities in Oregon State and Portions of Washington State".[2] Thus, the project will adhere to Terms and Conditions outlined in this new programmatic biological opinion and will not need to be considered in this Opinion.

1.3 Proposed Conservation Measures

The USFWS incorporated conservation measures into the project design to avoid and minimize effects to listed OC coho salmon. These measures address in-water work, soil stabilization, restoration materials, revegetation techniques, livestock watering facility, livestock fencing, construction techniques, equipment operation, pollution and erosion control, and adherence to NOAA Fisheries' fish passage and handling guidelines. The following measures highlight the BMPs provided by the USFWS. For further details refer to the BA.

In-water Work
The Oregon Department of Fisheries and Wildlife (ODFW) requires that all in-water work for Roache Creek be conducted between July 15 and September 15. The timing of in-water work may be extended if the ODFW approves an extension based on current year, site-specific conditions. In-water work will occur during the lowest water period within the timing guidelines for the affected stream reach.

Fish Passage and Salvage
Fish present in the north and south ditches will be transported upstream of the project site. In handling and moving fish, the following actions will be undertaken:

1. Before and intermittently during dewatering activities, an attempt will be made to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.
2. A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish will conduct or supervise the entire capture and release operation.

[2] Telephone conversation between Jarvis Gust, USFWS, and Bridgette Lohrman, NOAA Fisheries (June 4, 2004).

3. If electrofishing equipment is used, the capture team will comply with NOAA Fisheries' electrofishing guidelines (NOAA Fisheries 2000).
4. The capture team will handle the ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.
5. Captured fish will be released as near as possible to the capture sites.
6. ESA-listed fish will not be transferred to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.
7. Other Federal, state, and local permits necessary to conduct the capture and release activity will be obtained.
8. USFWS and NOAA Fisheries' personnel, or its designated representative, will be allowed to accompany the capture team during the capture and release activity, and will be allowed to inspect the team's capture and release records and facilities.
9. A report will be prepared addressing the capture and release of listed fish species during the isolation of an in-water work area.

Erosion Control

A pollution and erosion control plan (PECP) will be developed when hazardous materials will be used and project activities will create erosion issues. The PECP will meet requirements of all applicable laws and regulations. The PECP will include the following:

1. Practices to prevent erosion and sedimentation associated with construction sites, equipment and material storage sites, fueling operations, and staging areas.
2. A description of any hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.
3. A spill containment and control plan that includes:
    a. Notification procedures,
    b. specific clean up and disposal instructions for different products,
    c. quick response containment and clean up measures which will be available on site,
    d. proposed methods for disposal of spilled materials, and
    e. employee training for spill containment.
4. Temporary erosion controls must be installed at all project sites where restoration activities will result in soil disturbance and the potential for sediment transport. Controls must remain in place and be maintained until vegetation is established at the sites or as needed to prevent erosion. Controls include, but are not limited to, silt fences, straw bales,[3] sandbags, jute mats, coffer dams, water bladders, and coconut logs.

[3] When available, certified weed-free straw or hay bales must be used to prevent introduction of invasive and non-native weeds.

5. During construction, all erosion controls will be inspected weekly to ensure they are working adequately.[4]
    a. If monitoring or inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately to make repairs, install replacements, or install additional controls as necessary.
    b. Sediment will be removed from erosion controls once the sediment reaches one-third of the exposed height of the control.
    c. Sediments collected behind erosion control structures will be removed and stabilized at an appropriate upland disposal site immediately after the completion of a project.
6. Emergency erosion controls (*e.g.,* silt fences, straw bales) will always be available on-site whenever surface water is present at a project site.
7. An oil-absorbing, floating boom will be present on-site when operating heavy equipment within 50 feet of aquatic habitats.
8. Stockpile areas will be located on or immediately beside a project site whenever possible, but at least 150 feet from aquatic habitats. Erosion controls must be implemented around stockpiled materials, as needed, to prevent the introduction of pollutants into the surrounding areas.

Instream Techniques and Materials

1. Materials used for instream structures will be the same type of materials that historically occurred at the site and only durable wood materials will be used for instream structures.
2. Large wood used for instream structures will be appropriately sized and placed to minimize or eliminate the movement of these materials during high flow events. Size standards will be determined by qualified professionals and be based on individual stream reaches and their seasonal discharge rates.
3. The installation of an instream structure will not result in a fish passage barrier to juvenile or adult fish or other aquatic species, especially during critical life cycle periods.
4. Soil disturbance along stream channels will be minimized or eliminated whenever possible.

Revegetation Techniques

1. Native vegetation will be planted on disturbed project sites, where appropriate, and protected from further disturbance until new growth is well established.
2. Each area requiring revegetation will be planted using a diverse assemblage of species native to the project area or region, including grasses, forbs, shrubs and trees. Invasive and noxious species will not be used for revegetation.
3. Temporary or permanent fencing will be installed, as necessary, to prevent livestock access to revegetated sites.

[4] "Working adequately" means that project activities do not increase ambient stream turbidity by more than 10% when measured relative to a control point immediately upstream of the turbidity-causing activity.

4. Native vegetation will be salvaged, as appropriate, from areas where soil disturbance will be occurring on a project site and replanted later at the site.
5. Seedling growth will be improved by removing competing plant species (*e.g.,* grasses) around them.
6. Proper methods will be employed to protect seedlings from animal, insect, and environmental damages. Seedlings will be periodically examined for damages and diseases.
7. Surface application of plant fertilizers will be applied at agronomic rates, but not within fifty feet of any aquatic habitat.
8. Pesticides will not be used to control or remove invertebrate and vertebrate species and microorganisms (*e.g.,* viruses, bacteria, fungi).
9. Herbicides will not be used to control or remove invasive and non-native vegetation.

Construction Techniques

1. The boundary of a project site will be flagged to prevent soil disturbance to areas outside the site. Construction impacts will be confined to the minimum area necessary to complete the project.
2. The removal of any native vegetation will be limited to the amount that is absolutely necessary to complete a construction activity.
3. Native materials will be conserved for site restoration.
4. The in-water work area will be completely isolated from the active flowing stream using inflatable bladders, sandbags, sheet pilings, or similar materials if adult or juvenile fish are reasonably certain to be present, or if the work area is 300 feet upstream of spawning habitats. This does not apply to the placement of large woody debris to construct fish habitat structures.
5. Fish screens will be installed, operated, and maintained according to NOAA Fisheries' fish screen criteria[5] on each water intake used for project construction, including pumps used to isolate an in-water work area.
6. Practices will be instituted that prevent construction materials and debris from dropping into aquatic habitats. Remove any materials that do drop into aquatic habitat with a minimal amount of disturbance to these habitats.
7. All disturbed areas will be stabilized following any break in work unless construction will resume within 7 days.

Equipment Operation

1. When heavy equipment will be used, the equipment selected must have the least adverse effects on the environment (*e.g.,* minimally-sized, low ground pressure equipment).
2. The use of equipment in or beside a stream channel will be minimized to reduce sedimentation rates and channel instability.

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[5] National Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996) (guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm). Note: New criteria are currently being drafted by NOAA Fisheries.

3. Equipment staging and refueling areas will be placed 150 feet or more from any stream, waterbody, or wetland. These areas will be used to store equipment, supplies, materials, and fuels, and for the cleaning, maintenance, and refueling of equipment.
4. All equipment operated within 150 feet of an aquatic habitat, will be inspected daily for fluid leaks before leaving the equipment staging area. All detected leaks will be repaired in the staging area before the equipment resumes operation.
5. All stationary power equipment (*e.g.,* generators) operated within 150 feet of any aquatic habitat will be diapered to prevent leaks and/or enclosed in a containment device (*e.g.,* non-permeable drip pan) of adequate capacity to retain equipment fluids (*e.g.,* gasoline, diesel fuel, oil) if a leak occurs.

NOAA Fisheries regards the conservation measures included in the BA that accompanied the consultation request as intended to minimize adverse effects to anadromous salmon habitat, and considers them to be part of the proposed action.

1.4 Action Area

The action area is defined by NOAA Fisheries regulations (50 CFR 402.02) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area for this project is Roache Creek, including the streambed, streambank, water column, and adjacent riparian zone extending 100 feet upstream of the construction area and downstream to the confluence of Roache Creek and Maple Creek.

2. ENDANGERED SPECIES ACT

2.1 Conference Opinion

NOAA Fisheries listed OC coho salmon as threatened under the ESA on August 10, 1998 (63 FR 42587), and issued protective regulations under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). Critical habitat is not designated or proposed for this species.

In September 2001, in the case *Alsea Valley Alliance v. Evans*, U.S. District Court Judge Michael Hogan struck down the 1998 ESA listing of OC coho salmon and remanded the listing decision to NOAA Fisheries for further consideration. In November 2001, the Oregon Natural Resources Council appealed the District Court's ruling. Pending resolution of the appeal, in December 2001, the Ninth Circuit Court of Appeals stayed the District Court's order that voided the OC coho listing. While the stay was in place, the OC coho evolutionarily significant unit (ESU) was again afforded the protections of the ESA.

On February 24, 2004, the Ninth Circuit dismissed the appeal in *Alsea*. On June 15, 2004, the Ninth Circuit returned the case to Judge Hogan and ended its stay. Judge Hogan's order invalidating the OC coho listing is back in force. Accordingly, OC coho are now not listed, and

ESA provisions for listed species, such as the consultation requirement and take prohibitions, do not apply to OC coho.

In response to the *Alsea* ruling, NOAA Fisheries released its revised policy for considering hatchery stocks when making listing decisions on June 3, 2004 (69 FR 31354). NOAA Fisheries completed a new review of the biological status of OC coho salmon, and applying the new hatchery listing policy, proposed to list OC coho salmon as a threatened species on June 14, 2004 (69 FR 33102). NOAA Fisheries must make a final decision on the proposed OC coho salmon listing by June 14, 2005.

The objective of this Opinion is to determine whether the Roache Creek Stream and Wetland Restoration Project, proposed by the USFWS, is likely to jeopardize the continued existence of OC coho salmon.

2.1.1 Biological Information and Critical Habitat

Although data are limited to assess population numbers or trends, all coho salmon stocks comprising the OC coho salmon ESU are depressed relative to past abundance. The status and relevant biological information concerning OC coho salmon are well described in the proposed and final rules from the Federal Register (60 FR 38011, July 25, 1995; and 63 FR 42587, August 10, 1998, respectively), and Weitkamp *et al.* (1995).

Estimated escapement of coho salmon in coastal Oregon was about 1.4 million fish in the early 1900s, with harvest of nearly 400,000 fish (Weitkamp *et al.* 1995). Abundance of wild coho salmon spawners in Oregon coastal streams declined during the period from about 1965 to roughly 1975, and has fluctuated at a low level since that time (Nickelson *et al.* 1992). Despite better-observed spawning escapements for the ESU from 2001 to 2003, population trends remain low (Table 3). Contemporary production of coho salmon may be less than 10% of the historic production (Nickelson *et al*. 1992). Average spawner abundance has been relatively constant since the late 1970s, but preharvest abundance has declined. Average recruits-per-spawner may also be declining. The OC coho salmon ESU, although not at immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp *et al*. 1995).

The bulk of production for the OC coho salmon ESU is skewed to its southern portion, where the coastal lake systems (*e.g.*, Tenmile, Tahkenitch, Siltcoos basins) and the Coos and Coquille Rivers are more productive. The Forest Service characterizes the coho salmon populations in the Coastal Lakes Watershed Analysis (1998) as:

> "Coastal Lakes Watershed is considered one of the best coho salmon strongholds in the State of Oregon....The presence of the lakes within these stream systems is undoubtedly a major factor contributing to the health of these fish runs. On the other hand, these systems are not considered healthy, since substantial portions of their mainstems do not currently function as salmon rearing habitat as they did in the

past....Another limitation is that the majority of the important fish rearing habitat is in the lower sections of the watersheds which are privately owned..."

Estimates of coho spawner escapement for the last four decades in the Siltcoos River basin are considered to be well below levels that existed at the turn of the century. The coho salmon commercial fishery averaged 5,000 coho salmon per year during the 1890s (Table 2).

Table 2. Estimated average number of coho spawners per decade since the 1960s in the Siltcoos Basin (USDA-FS 1998).

	Decade			
	1960s	**1970s**	**1980s**	**1990s**
Average number of coho salmon spawners	5055	3015	3475	2,782*

*Average from ODFW data in Table 4.

In the 1990s, coho salmon abundance in the Siltcoos River basin remained below estimates of historic levels at the turn of the century. A recent estimate of average annual abundance of wild coho salmon spawners in the Siltcoos basin is 3,193 fish (1990 to 2002) with a range of 391 (1992) to 5,104 spawners (2001) (ODFW 2003) (Table 3). Though final estimates of 2003 returns are not available, preliminary information indicate continued increases in coho salmon spawners (ODFW 2003). Recent increases have been attributed to conservation efforts (*e.g.*, habitat restoration, harvest restrictions) and favorable ocean conditions, which are known to be cyclic.

Table 3. Estimated spawning populations for naturally-produced coho salmon in the project area. (source: ODFW 2003).

	Estimated Wild Coho Population		
	Select Project Area Basins[(1)]		OC ESU
Year	Number of fish	Est. % of ESU	Number of fish
1990	1622	10	16510
1991	2895	10	29078
1992	391	1	38604
1993	3622	8	44266
1994	1426	4	37477
1995	4497	11	41303
1996	4775	8	59453
1997	2653	19	14068
1998	3122	16	19816
1999	2819	8	34646
2000	3835	7	54085
2001	5104	3	147981
2002	47	2	231
2003	6,590*	3	212,894*
Average	3436	8	70114

(1) Population Estimates for Adult Coho Based on Traditional Spawning Ground surveys in Siltcoos Lake.
* Estimates for 2003 are preliminary

Timing of adult coho salmon river entry is largely influenced by river flow. Coho salmon normally wait for fall freshets before entering rivers. The river entry of coho salmon peaks in October (*e.g.,* Siuslaw and Umpqua Rivers) and may occur from October to early February (*e.g.,* Tenmile Lake) (Weitkamp *et al*. 1995) (Table 4). Spawning in the Siltcoos basin occurs from mid-December to late January, with peak spawning occurring in early January (Weitkamp *et al*. 1995). Intragravel residency (egg to fry) varies greatly between river basins and reaches, and is largely dependent on substrate composition and water temperature (Sandercock 1991). No specific information is available on intragravel residence timing in project area watersheds. However, a study done in Oregon coastal streams found an average incubation period of 110 days, with emergence typically occurring 2 to 3 weeks following hatch (Sandercock 1991). This suggests a 4 to 5 month intragravel residency period. Juvenile outmigration occurs the following spring and peaks in early to mid-May (*e.g.*, Siuslaw - Triangle Lake and Tenmile Lake) (Weitkamp *et al*. 1995).

The BA submitted by the USFWS states that spawning habitat begins to appear in Maple Creek at approximately river mile 8 in each of its tributaries. Below river mile 8, the silt bottom of these low gradient creeks eliminates any potential for spawning. Spawning does occur in the small tributaries that enter the mainstem throughout the watershed and it is vital to maintain these runs. Roache Creek is one of these small tributaries that provides adequate spawning habitat for the anadromous fish. Summer rearing is also present and highly utilized in these tributaries like Roache Creek since summer water temperatures in Maple Creek are too high to support large numbers of coho salmon.

Table 4. Life history timing for OC coho salmon in the Mid-South Coast basins. Life history event timing is based on information for Siltcoos River (spawning), Siuslaw River and Tenmile Lake (juvenile outmigration), and river entry (Siuslaw River, Umpqua River, and Tenmile Lake) (Weitkamp *et al*. 1995, Sandercock 1991). Dark shading indicates peak occurrence of life history event. Medium shading indicates increasing or declining occurrence of life history period.

Exceptions may exist that will allow individual fish to fall outside of the indicated periods.

Period of Proposed Action or Life History Event	Calendar Year (month)											
	J	F	M	A	M	J	J	A	S	O	N	D
Proposed excavation and in-water work												
River Entry												
Spawning												
Intragravel Development[(1)]												
Juvenile Rearing												
Juvenile Out-migration												

(1) Based on spawning period (Weitkamp *et al*. 1995) and a 4-5 month intragravel development period (Sandercock 1991).

2.1.2 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: (1) Defining the

biological requirements of the listed species; and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed species' life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, it must identify reasonable and prudent alternatives for the action.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. Because critical habitat is not designated for OC coho salmon, NOAA Fisheries did not include a critical habitat analysis.

2.1.3 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. Essential habitat features for survival and recovery of coho salmon include: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, rearing and spawning. In spite of increased returns in recent years, the status of OC coho salmon, based on their risk of extinction, has not significantly improved since the species was listed. This elevated extinction risk is largely reflective of the cyclic nature of oceanic conditions, freshwater habitat conditions that are degraded and not properly functioning, and hatchery practices that threaten the species' ability to survive the natural range of habitat variability

2.1.4 Environmental Baseline

In step 2 of NOAA Fisheries' analysis, we evaluate the relevance of the environmental baseline in the action area to the species' current status. The environmental baseline is an analysis of the effects of past and ongoing human-caused and natural factors leading to the current status of the species or its habitat and ecosystem within the action area.

Land uses in the vicinity of the action area are primarily agricultural, with any residential use associated with cattle-raising and other farming activities. Riparian areas and stream channels in the action area have been damaged by activities related to these land uses throughout the watershed (FEMAT 1993, Botkin *et al.* 1995, OCSRI 1997). Habitat changes that have contributed to the decline of OC coho in the action area include: (1) Reduced biological, chemical, and physical connectivity between streams, riparian areas, floodplains, and uplands; (2) elevated fine sediment yields; (3) reduced instream large woody debris; (4) loss or degradation of riparian vegetation; (5) altered stream channel morphology; (6) altered base and peak stream flows; and (7) fish passage impediments.

Siltcoos Lake is the largest lake on the Oregon Coast, with a surface area of 3,164 acres and an average depth of 11 feet. Siltcoos Lake drains a watershed of 68 square miles which includes Maple, Fiddle, Woahink, and Lane Creeks (Zhou 2000). These four creeks drain into Siltcoos Lake and flow out through 3.0 miles of the Siltcoos River, which then empties into the Pacific Ocean.

The watershed is characterized by a temperate marine climate because it is on the central Oregon Coast. The mean annual temperature is 52°F with an average maximum temperature of 61°F and an average minimum temperature of 44.5°F. Average annual rainfall ranges spatially due to the dynamic landscape of the coastal area. Close to sea level, precipitation averages 65 inches of rain per year. Moving inland to elevations of 100 feet, the precipitation average increases to 80 inches per year. In the headwaters of these watersheds, the average precipitation often exceeds 90 inches at elevations above 1,200 feet (USDA-FS 1998).

Siltcoos Lake is on the Oregon Department of Environmental Quality 303(d) list of Water Quality Limited Water Bodies for aquatic weeds or algae (ODEQ 2002).

The Maple Creek subwatershed, which contains the project area on Roache Creek, is 13,534 acres. Approximately 66% of the land is in use as agriculture and 33% is either public or private forestry. Roache Creek is in the lower portion of the Maple Creek watershed at river mile 2, and contributes to a large percentage (94%) of the mainstem that is considered to be rechannelized and diked.(USDA-FS 1998).

The BA submitted by the USFWS provided the following description of Roache Creek:

> The bottomlands have been homesteaded since the late 1800s and most streams have been channelized and ditched on the upper sides of the valleys for

agricultural production. The low gradient streams have changed from sinuous, complex, diverse systems to simple down-cut ditches with very little suitable fish habitat. Roache Creek is an example of this type of manipulation. Roache Creek has been shifted over to the south edge of the valley and dikes have been installed and maintained. These have limited fish habitat and native riparian vegetation, and initiated an incursion of Himalayan blackberry and reed canary grass along the lower portion of Roache Creek. Fish passage problems and hydrologic alterations were both noted as limiting factors in the Lakes Basin Watershed Analysis that was completed by the Siuslaw National Forest in 1997.

During the storms of February and November of 1996, landslides occurred in the Roache Creek drainage. These storms brought heavy sediment loads into the valley floor and deposited them onto the lower portions of Roache Creek, aggrading the ditch. Although the upstream landowner has been constructing berms on their property to keep the flows in the ditch, the Rodet's have decided not to berm or clean the ditch. As a result, when the stream hits the Rodet property, the streambed elevation is higher and the flows are forced out of the channel and are dispersed across the valley floor. Approximately eighty percent of Roache Creek is now running down the property fence line, eroding the soil away from the fence post, along an old animal trail to a smaller ditch on the north side of the valley and the main channel is being abandoned. In the process, coho salmon are reportedly being stranded across the valley floor. The ditch on the north side of the Roache Creek valley, intended to capture spring fed flow and hillside drainage, now carries the majority of the flow out of the watershed. As a result, increased incidence of bank erosion has been seen in the north ditch.

Based on the best information available on the current status of OC coho salmon and NOAA Fisheries' assumptions given the information available regarding population status, population trends, and the poor environmental baseline conditions within the action area, the environmental baseline does not meet all of the biological requirements for OC coho salmon. Actions that promote or do not retard attainment of properly functioning aquatic conditions, when added to the environmental baseline, are necessary to meet the needs of the species (*i.e.*, survival and recovery of listed fish).

2.1.5 Effects of Proposed Action

In step 3 of the jeopardy analysis, NOAA Fisheries evaluates the effects of the proposed action on listed fish and their habitat.

NOAA Fisheries expects that the effects of the proposed project would improve or maintain each of the water quality and habitat elements over the long-term (greater than 2 years). However, in the short term, NOAA Fisheries expects a temporary increase in sediment entrainment and turbidity, elevation of water temperature and nutrient levels, degradation of streambank condition, and disturbance of riparian and instream habitat. Fish may be killed or temporarily

displaced during the in-water work. Restoration of Roache Creek to a naturally-meandering channel and restoration of riparian vegetation is likely to provide long-term benefits to coho salmon and other aquatic species due to the maintenance and restoration of functional habitat conditions.

Potential adverse effects to OC coho salmon from the proposed action include: (1) Lethal and sublethal effects from degraded water quality (*i.e*, increased turbidity or contaminants); (2) alteration of habitat elements (*i.e.,* substrate and riparian vegetation); (3) short-term reduction of benthic food sources; and (4) handling injury and mortality due to relocation of juveniles upstream.

Lethal and sublethal effects from degraded water quality

Turbidity

Excavation of a new channel and the consequential reintroduction of water to that channel without vegetative stability would likely cause an increase in suspended sediments. Earth and stream substrate-disturbing activities, including excavation, stockpiling, vegetation manipulation, and construction, can result in increased delivery of sediment to streams, and increased turbidity in the water column. The severity of the effect depends on numerous factors, including the amount of ground-disturbing activity, slope, amount of vegetation removed, timing of work, and weather. Sediment introduced into streams can degrade spawning and incubation habitat, and can negatively affect primary and secondary productivity. This may disrupt feeding and territorial behavior through short-term exposure to turbid water.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Birtwell *et al.* 1984, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (McLeay *et al.* 1984, 1987, Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987).

Fish that remain in turbid, or elevated total suspended solids (TSS), waters experience a reduced predation from piscivorus fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade-off (*e.g*., enhanced survival) with the cost of potential physical effects (*e.g*., reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and importance of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can

increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

To minimize exposure of salmonids to potentially harmful turbid waters, the project would include three actions to reduce adverse effects. First, the project would be restricted to conducting work during the recommended ODFW low-flow period of July 15 through September 15, and would be conducted in the fewest days possible. Second, the USFWS would implement the measures outlined in section 1.3 regarding their proposed conservation measures for pollution and erosion controls. Third, the creation of stream meanders and instream structures (*e.g.*, large woody debris) in the new channel, which are built into the design of the restoration project, would assist in reducing TSS. These structures would decrease stream velocity, increase floodplain connectivity and sediment deposition, and slow sediment routing in the watershed, benefitting coho salmon habitat and survival. Implementation of the above actions would minimize, but not eliminate, the effects of increased turbidity on salmonids.

Chemical Contamination

As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of the backhoes, excavators, and other equipment requires the use of fuel, lubricants, *etc.*, which, if spilled into the channel of a waterbody or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants, such as fuel, oil, and some hydraulic fluids, contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Because the potential for chemical contamination should be localized and brief, and fish would not be present in the new channel while work is being conducted, the probability of direct mortality is negligible.

Alteration of Habitat Elements

Decommissioning portions of the existing north and south ditches to create a newly-constructed stream channel would cause a decline, for the near-future, of the functioning riparian habitat. Riparian vegetation provides water quality functions (*e.g.* temperature control and nutrient transformation), bank stability, detritus (insect and leaf input, small wood for substrate for insects, *etc.*), microclimate formation, sediment retention and filtering, and recharge of the stream. A reduction in shade of Roache Creek may occur due to the immature age of the riparian plantings. This may elevate stream temperatures for a period of years until the newly-planted vegetation is established and begins to shade the new creek. To offset this, the placement of wood and the connection to the natural spring and wetland would assist in alleviating temperature increases. The intention of the project is to re-establish its connection to the water table, store more subsurface flow, and increase summer base flow all contributing to cooler water temperatures. To minimize impacts to the riparian habitat, USFWS would adhere to their Instream Techniques, Construction Techniques, and Equipment Operation guidelines as outlined in section 1.3. Implementing these BMPs would minimize but not eliminate the effect of a temporary loss of riparian and instream habitat.

Short-term Reduction in Benthic Food Sources

As Roache Creek is introduced into the new stream reaches, redistribution of aquatic vegetation and benthic invertebrates would result in a temporary reduction in the availability of food for rearing juvenile OC coho salmon. NOAA Fisheries expects long-term increases in the availability of benthic invertebrates as a food source for juvenile OC coho salmon due to: (1) Increase in total channel length; (2) increases in the complexity of habitat in Roache Creek including in-channel placement of large woody debris; and (3) revegetation of the new channel with planted riparian vegetation.

Handling Injury and Mortality of OC Coho Juveniles

As a result of the Roache Creek channel relocations, extensive reaches of the degraded channel will be plugged, isolated, and dewatered. Rescue, salvage, and relocation of fish and other aquatic species will result in the potential capture and handling of juvenile (predominately age-0) coho salmon. NOAA Fisheries assumes a 5% direct or delayed mortality rate from capture and relocation stress. NOAA Fisheries does not expect the fish stranded in reaches isolated by channel abandonment to survive unless they are relocated. To minimize the effects of handling and moving juvenile coho salmon, the USFWS would adhere to conservation measures identified under the Fish Passage and Salvage of section 1.3.

2.1.6 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." This is step 4 in NOAA Fisheries' analysis process.

The action area includes significant tracts of private and state lands. Land use on these non-federal lands include timber production, agriculture, and rural development. Chemical fertilizers or pesticides are used on many of these lands, but no specific information is available regarding their degree of use within the project area. Furthermore, NOAA Fisheries does not consider the rules governing these land uses on these non-federal lands within Oregon to be sufficiently protective of watershed, riparian, and stream habitat functions to support the survival and recovery of listed Pacific salmon species. Therefore, these habitat functions likely remain at risk due to future activities on non-federal lands within the affected river basins.

Non-federal activities within the action area are likely to increase with a projected 19% increase in human population in Lane County over the next 22 years in Oregon (ODAS 2004). Thus, NOAA Fisheries assumes that future private and state actions will continue to occur at similar levels within the action area and will increase gradually over time as population density increases. Each subsequent action may have only a small incremental effect, but taken together they may have a significant effect that would further degrade the watershed's environmental baseline and undermine the improvements in habitat conditions necessary for listed species to survive and recover.

2.1.7 Conclusion

The final step in NOAA Fisheries' approach to determine jeopardy is to determine whether the proposed action is likely to appreciably reduce the likelihood of species survival or recovery in the wild. NOAA Fisheries has determined that when the effects of the proposed action addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, it is not likely to jeopardize the continued existence of listed OC coho salmon. NOAA Fisheries used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects.

These conclusions are based on the following considerations: (1) In-water work would occur when juvenile OC coho salmon presence is reduced, and adults and eggs are not present; (2) the proposed changes to the stream channel would result in improved habitat for spawning and rearing for OC coho salmon because of changes in channel re-alignment, instream habitat, riparian condition, and hydrology; (3) negative effects such as increased turbidity and fish handling would be short-term in both duration and extent; (4) incorporation of conservation measures in the project design would minimize impacts to juvenile OC coho salmon (*e.g.,* limiting in-water work to the dry season, implementation of a pollution and erosion control plan, adhering to BMPs for operation of equipment, construction techniques); and (5) the proposed action is not likely to impair functioning habitat, or retard the long-term progress of impaired habitat toward a functioning condition necessary to the long-term survival and recovery at the population or ESU scale.

2.1.8 Reinitiation of Consultation

Consultation must be reinitiated if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or, (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

To reinitiate consultation, the USFWS must contact the Habitat Conservation Division, Oregon State Habitat Office, of NOAA Fisheries at 525 NE Oregon Street, Suite 500, Portland, Oregon 97232-2778, and refer to NOAA Fisheries No.: 2004/00212.

2.2 Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." [16 USC 1532(19)] Harm is defined by

regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering." [50 CFR 222.102] Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." [50 CFR 17.3] Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

An incidental take statement specifies the effect of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize adverse effects and sets forth terms and conditions with which the action agency must comply to implement the reasonable and prudent measures. However, the incidental take statement included in this conference opinion does not become effective until NOAA Fisheries adopts the conference opinion as a biological opinion, after the listing is final. Until the time that the species is listed, the prohibitions of the ESA do not apply.

2.2.1 Amount or Extent of Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of OC coho salmon. Harm of juvenile OC coho salmon is reasonably likely to result from increased turbidity when OC coho juveniles are introduced to the newly-constructed stream channel and from the absence of established vegetative riparian habitat. Harassment of juvenile OC coho salmon may result from in-water work activities involving seining and relocation of these juveniles upstream. Effects of actions such as these are largely unquantifiable in the short-term. In the long-term, the proposed work is likely to benefit OC coho salmon through restoration of the stream network and watershed. Short-term adverse effects may cause lethal and sublethal take. Diligent adherence to the proposed BMPs during the project implementation will minimize this take and avoid catastrophic loss of individuals.

The extent of take will be limited to the action area, including the water column, streambed, streambank, and adjacent riparian zone in Roache Creek and downstream to the confluence of Roache Creek and Maple Creek.

2.2.2 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of OC coho salmon resulting from the action covered by this Opinion. The USFWS shall comply with the following:

1. Avoid or minimize incidental take from activities involved with construction and restoration of the new Roache Creek stream channel that affect fish by degrading water quality (*i.e.* increased turbidity and chemical contamination) and alter habitat elements (*i.e*. substrate and riparian vegetation, reduction of benthic food sources) by avoiding or minimizing disturbance to riparian and aquatic systems.

2. Avoid or minimize incidental take from fish salvage and relocation activities.

3. Complete a comprehensive monitoring and reporting program to confirm this Opinion is meeting its objective of minimizing take from permitted activities.

2.2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the USFWS must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. Implementation of the conservation measures provided by the USFWS and summarized in section 1.3 within this Opinion will further reduce the risk of adverse effects to OC coho salmon. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1 (riparian and aquatic systems), the USFWS shall ensure that:

    a. Implementation. The proposed action is implemented as described by the USFWS, including the use of Conservation Measures (summarized in this Opinion in section 1.3).
    b. Project Design. The design of this project must be reviewed to ensure that impacts to natural resources have been avoided, minimized and mitigated, and that the following overall project design conditions are met.
        i. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project.
        ii. In-water work. In-water work will be completed between July 15 and September 15.
        iii. Instream wood placement. Log and root wads placed within the active channel shall be secured by way of partial burial. No cables, stakes or rock materials shall be used.
    c. Pollution and Erosion Control Plan. Prepare and carry out a pollution and erosion control plan to prevent pollution caused by construction activities in riparian and upland areas. The plan must be available for inspection on request by USFWS or NOAA Fisheries.
        i. Plan Contents. The pollution and erosion control plan will contain pertinent elements listed below, and meet requirements of all applicable laws and regulations.
            (1) The name and address of the party(s) responsible for accomplishment of the pollution and erosion control plan.

(2) Practices to prevent erosion and sedimentation associated with access roads, streambank grading, equipment and material storage sites, fueling operations, and staging areas. A sediment or silt curtain must be installed and maintained on the downslope site of the bank grading activities. Seeding outside of the growing season will not be considered adequate nor permanent stabilization.

(3) A description of any regulated or hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

(4) A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(5) Practices to prevent construction debris from dropping into the creek, and to remove any material that does drop with a minimum disturbance to the riverbed and water quality.

ii. Inspection of erosion controls. During construction, monitor instream turbidity and inspect all erosion controls weekly during the dry season, or more often as necessary, to ensure that erosion controls are working adequately.[6]

(1) If monitoring and inspection shows that the erosion controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Remove sediment from erosion controls once it has reached 1/3 of the exposed height of the control.

d. Pre-construction activities. The following actions must be completed before significant[7] alteration of the project area.

i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands, and other sensitive sites beyond the flagged boundary.

ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.

(1) A supply of erosion control materials (*e.g.*, silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.

[6] 'Working adequately' means that project activities do not increase ambient stream turbidity by more than 10% above background 50 feet below the discharge, when measured relative to a control point immediately upstream of the turbidity causing activity.

[7] 'Significant' means an effect can be meaningfully measured, detected or evaluated.

(2) An oil-absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.

iii. Temporary erosion controls. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

e. Heavy Equipment. Restrict use of heavy equipment as follows.

i. Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (*e.g.*, minimally-sized, rubber-tired, low ground pressure equipment).

ii. Vehicle and material staging. Store construction materials, and fuel, operate, maintain, and store vehicles as follows.

(1) To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on-site.

(2) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed 150 feet or more from any stream, waterbody or wetland, unless otherwise approved in writing by NOAA Fisheries.

(3) Inspect all vehicles operated within 150 feet of any stream, water body or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by USFWS or NOAA Fisheries.

(4) Diaper all stationary power equipment (*e.g.*, generators) operated within 150 feet of any stream, waterbody or wetland to prevent leaks, unless suitable containment is provided to prevent potential spills from entering any stream or waterbody. Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed a minimum of 150 feet from any stream, waterbody, or wetland, unless otherwise approved in writing by NOAA Fisheries.

f. Site preparation. Native materials must be conserved on site for site restoration.

i. If possible, leave native materials where they are found.

ii. If materials are moved, damaged or destroyed, replace them with a functional equivalent during site restoration.

iii. Stockpile all large wood[8] taken from below ordinary high water and from within 150 feet of a stream, waterbody or wetland, native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site restoration.

g. Earthwork. Earthwork, including excavation, filling and compacting, must be completed as quickly as possible. Stabilize all disturbed areas following any break in work unless construction will resume within 4 days.

h. Site Restoration. Prepare and carry out a site restoration plan in accordance with the conservation measures in section 1.3 to ensure that the newly-created channel and the riparian habitat is stable and appropriately planted. Make the written plan available for inspection on request by the USFWS or NOAA Fisheries.

i. General Considerations.

(1) Restoration Goal. The goal of site restoration is the renewal of habitat access, water quality, production of habitat elements (*e.g.* large woody debris), channel conditions, flows, watershed conditions and other ecosystem processes that form and maintain productive fish habitats.

(2) Revegetation. Replant vegetation before the first April 15 following construction of the new channel. Use a diverse assemblage of species native to the project site, including grasses, forbs, shrubs and trees. Noxious or invasive species may not be used.

(3) Pesticides. Take of ESA-listed species caused by any aspect of pesticide use is not included in the exemption to the ESA take prohibitions provided by this incidental take statement. Pesticide use must be evaluated in an individual consultation, although mechanical or other methods may be used to control weeds and unwanted vegetation.

(4) Fertilizer. Do not apply surface fertilizer within 50 feet of any stream channel.

(5) Fencing. Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

ii. Plan contents. Include each of the following elements.

(1) Responsible party. The name and address of the party(s) responsible for meeting each component of the site restoration requirements, including providing and managing any financial assurances and monitoring necessary to ensure restoration success.

[8] 'Large wood' means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull channel width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, A Guide to Placing Large Wood in Streams, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

(2) Goals and objectives. Restoration goals and objectives that describe the extent of site restoration necessary to offset adverse effects of the project, by aquatic resource type.

(3) Performance standards. Use these standards to help design the plan and to assess whether the restoration goal is met. While no single criterion is sufficient to measure success, the intent is that these features should be present within reasonable limits of natural and management variation.

(a) Bare soil spaces are small and well dispersed.

(b) Soil movement, such as active rills or gullies and soil deposition around plants or in small basins, is absent or slight and local.

(c) If areas with past erosion are present, they are completely stabilized and healed.

(d) Plant litter is well distributed and effective in protecting the soil with few or no litter dams present.

(e) Native woody and herbaceous vegetation, and germination microsites, are present and well distributed across the site.

(f) Vegetation structure is resulting in rooting throughout the available soil profile.

(g) Plants have normal, vigorous growth form, and a high probability of remaining vigorous, healthy and dominant over undesired competing vegetation.

(h) High impact conditions confined to small areas necessary access or other special management situations.

(4) Five-year monitoring and maintenance plan.

(a) A schedule to visit the restoration site annually for 5 years or longer as necessary to confirm that the performance standards are achieved. Despite the initial 5-year planning period, site visits and monitoring will continue from year-to-year until the USFWS certifies that site restoration performance standards have been met.

(b) During each visit, inspect for and correct any factors that may prevent attainment of performance standards (*e.g.*, low plant survival, invasive species, wildlife damage, drought).

(c) Keep a written record to document the date of each visit, site conditions and any corrective actions taken.

2. To implement reasonable and prudent measure #2 (fish salvage and relocation), the USFWS shall ensure that:

a. Seining. If the fish-salvaging aspect of this project requires the use of seine equipment to capture fish, it must be accomplished as follows.

i. Seining will be conducted by, or under the supervision of a fishery biologist experienced in such efforts. Staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.

ii. ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever appropriate, to prevent the added stress of an out-of-water transfer.

iii. Seined fish must be released as near as possible to capture sites.

iv. The USFWS shall ensure that the transfer of any ESA-listed fish to third parties other than NOAA Fisheries personnel receives prior approval from NOAA Fisheries.

v. The USFWS shall ensure that any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities will be obtained before project seining activity.

vi. The USFWS must allow NOAA Fisheries or its designated representative to accompany field personnel during the seining activity, and allow such representative to inspect the seining records and facilities.

vii. A description of any seine and release effort will be included in a post-project report, including the name and address of the supervisory fishery biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions before and following placement and removal of barriers, the means of fish removal, the number of fish removed by species, the condition of all fish released, and any incidence of observed injury or mortality.

b. Electrofishing. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, it must be accomplished as follows (NMFS 2000).

i. Electrofishing may not occur near listed adults in spawning condition or near redds containing eggs.

ii. Equipment must be in good working condition. Operators must go through the manufacturer's preseason checks, follow all provisions, and record major maintenance work in a log.

iii. A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment must train the crew. The crew leader's experience must be documented and available for confirmation; such documentation may be a logbook. The training must occur before an inexperienced crew begins any electrofishing; it must also be conducted in waters that do not contain listed fish.

iv. Measure conductivity and set voltage as follows:

Conductivity (umhos/cm)	Voltage
Less than 100	900 to 1100

100 to 300	500 to 800
Greater than 300	150 to 400

v. Direct current (DC) must be used at all times.

vi. Each session must begin with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500 us and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. In general, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.

vii. The zone of potential fish injury is 0.5 meters from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated because in such areas the fish are more likely to come into close contact with the anode.

viii. The monitoring area must be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.

ix. Crew members must carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. Sampling must be terminated if injuries occur or abnormally long recovery times persist.

x. Whenever possible, a block net must be placed below the area being sampled to capture stunned fish that may drift downstream.

xi. The electrofishing settings must be recorded in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, with observations on fish condition, will improve technique and form the basis for training new operators.

c. After completion of the project the new channel should be watered in a way that will not significantly impact water quality or cause fish stranding.

3. To implement reasonable and prudent measure #3 (monitoring and reporting), the USFWS shall:

a. Implementation monitoring. Provide NOAA Fisheries with a monitoring report within 30 days of project completion describing the USFWS' success meeting these terms and conditions. This report will consist of the following information.

i. Project identification

(1) Project name.
(2) Type of activity.
(3) Project location.
(4) USFWS contact person.
(5) Starting and ending dates for work completed.

ii. Photo documentation. Photos of habitat conditions at the project site, before, during, and after project completion.[9]

(1) Include general views and close-ups showing details of the project and project area, including pre and post construction.

(2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.

iii. Other data. Additional project-specific data.

(1) Pollution control. A summary of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.

(2) Isolation of in-water work area, capture and release.

(a) Supervisory fish biologist – name and address.

(b) Methods of work area isolation and take minimization.

(c) Stream conditions before, during and within one week after completion of work area isolation.

(d) Means of fish capture.

(e) Number of fish captured by species.

(f) Location and condition of all fish released.

(g) Any incidence of observed injury or mortality of listed species.

iv. Site restoration monitoring. In addition to the 30-day implementation report, the USFWS will submit an annual report by December 31 that includes the written record documenting the date of each visit to a restoration site, and the site conditions and any corrective action taken during that visit. Reporting will continue from year to year until the USFWS certifies that site restoration performance standards have been met. Submit a copy of this report and any other reports generated to the Oregon State Habitat Office of NOAA Fisheries:

Director, Oregon State Habitat Office
Habitat Conservation Division
National Marine Fisheries Service
Attn: 2004/00212
525 NE Oregon Street
Portland, OR 97232

b. Salvage notice. The following notice is included as a permit condition:

NOTICE: If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; telephone:

[9] Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

360.418.4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrates" include sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;

- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.2 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California. The designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km)(PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border.

Detailed descriptions and identifications of EFH for the groundfish species are found in the Final Environmental Assessment/Regulatory Impact Review for Amendment 11 to *The Pacific Coast Groundfish Management Plan* (PFMC 1998a) and NOAA Fisheries' *Essential Fish Habitat for West Coast Groundfish Appendix* (Casillas *et al.* 1998). Detailed descriptions and identifications of EFH for the coastal pelagic species are found in Amendment 8 to the *Coastal Pelagic Species Fishery Management Plan* (PFMC 1998b). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). The assessment of the potential adverse effects to these species' EFH from the proposed action is based on this information.

3.3 Proposed Action

The proposed action is detailed above in sections 1.2 and 1.3. This area has been designated as EFH for various life stages of Chinook and coho salmon. However, Chinook salmon have not been documented in the project reach.

3.4 Effects of Proposed Action

As described in detail in section 2.1.5, the proposed action will temporarily adversely affect rearing and spawning habitat for OC coho salmon including: (1) Elevated concentrations in

suspended sediments; (2) reduction in functioning riparian habitat; (3) reduction in benthic food sources; and (4) potential for chemical contamination of the waterway.

3.5 Conclusion

NOAA Fisheries believes that the proposed action may adversely affect the EFH for coho salmon during active construction, but will provide a long-term benefit to the species through habitat improvements.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the USFWS and all of the terms and conditions, except those pertaining to monitoring, contained in section 2.2.3 are applicable to EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the MSA (section 305(b)) and 50 CFR 600.920(j) require the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The USFWS must reinitiate EFH consultation with NOAA Fisheries if the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires Opinions to be based on the best scientific and commercial data available. This section identifies the data used in developing this Opinion.

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Appendix A

A schematic of the design for the Roache Creek Stream and Wetland Restoration Project

APPENDIX A

A schematic of the design for the Roache Creek stream and wetland restoration project.